Retention of Weighting on an Athletic Striker

Claim of Priority

This application is a continuation-in-part of Serial No. 10/262,734 filed October 1, 2002.

Field of the Invention

This invention relates generally to swinging of ball strikers as, for example, baseball bats. More specifically, it it related to the field of practice or warm-up swinging of such strikers or bats having weight added to them.

Background of the Invention

When athletes who handle ball strikers warm-up, or train, they commonly use two strikers, and swing them in unison a few times to loosen muscles. Holding and swinging two strikers is awkward, uncomfortable, and does not achieve the right feel, needed as by gripping and swinging only one striker but one striker does not achieve additional weight as can be provided by two strikers. There is need to overcome this dilemma, in a simple, effective and efficient manner, as is now provided by the present invention. In a similar manner, there is need to provide improvements as respects devices for adding weight to ball strikers such as baseball bats, for example.

There is also need for a weight holding device that can be easily attached to and removed from a bat and which positively and safely retains the added weight to the bat.

Summary of the Invention

It is a major object of the invention to provide a simple and effective device or apparatus that meets the above need. Basically, the device is adapted for use in a ball striker or bat having a taper or tapered surface, along its length, and includes:

a) a sleeve sized to extend about the bat at the taper location;

b) the sleeve having associated retention means to operatively engage the bat in a zone along said taper to resist lengthwise removal of the sleeve off the bat during bat swinging,

c) a weight or weights carried by the sleeve.

As will be seen, the weight or weights are typically carried at a location or locations proximate to the ball striking zone; and the retention means is spaced from the weight or weights, and has an arcuate interior surface to arcuately engage the bat at arcuately spaced locations.

It is a further object to enable bat reception through the sleeve, so that the bat handle projects from the sleeve, the engaged zone of the bat typically located between the handle and weight or weights. The latter may be located in a pocket or pockets formed by or attached to the sleeve.

An added object is to provide the retention means to include a retainer at the inner side of the sleeve, and which has an inner surface to engage the bat taper, such inner surface having a configuration defined by one of the following:

i) generally cylindrical

ii) tapered, lengthwise of the sleeve

A yet further object it to provide a first pulling device on the sleeve to enable manual pulling of the sleeve endwise along the bat during close fitting assembly of the sleeve to the bat. A second pulling device may be provided on the sleeve to enable manual pulling of the sleeve endwise along and off the bat. Such devices may comprise pullers such as loops projecting at the sleeve exterior.

Another object is to provide the weight or weights to comprise a deformable mass or masses of surface configuration, at or proximate the bat "Sweet spot".

An added object is to provide a retainer having an inner surface characterized by at least one of the following:

i) conical shape

ii) tapered

iii) cylindrical

iv) consisting of metal

v) consisting of non-metal

vi) consisting of plastic

Another aspect of the invention concerns provision of a method of use of the sleeve as described, in any of its forms, that includes

i) relatively advancing the sleeve in a first direction onto the bat to position the associated retention means at or along the bat taper;

ii) practice swinging the bat,

iii) and subsequently relatively retracting the sleeve off the bat in second direction opposite the first direction.

That method may include use of deformable weight or weights carried by the sleeve in spaced relation to the retainer, as well as the step of allowing said weight or weights to deform during bat swinging.

It is still a further object of the present invention to provide a bat weight which includes free flowing weighted materials such as shot, steel balls, bead, beans and sand.

It is is a further object of the present invention to provide a bat weight which can accomodate a plurality of bats having a plurality of widths and diameters.

These and other objects and advantages of the invention, as well as the details of an illustrative embodiment, will be more fully understood from the following specification and drawings, in which;

Description of the Drawings

Fig. 1 is a front side elevation showing an elongated sleeve-type receptacle receiving a ball striker such as a baseball bat;

Figure 2 is a view like Figure 1 showing a modification;

Figures 3 and 4 are side views of two types of retainers usable in the sleeve of Figures 1 and 2;

Figure 5 is a view like Figure 1, showing another modification;

Figures 6-9 are three-dimensional views of further modifications;

Figure 10 is a section taken through a modification having inner, outer and intermediate sleeve construction;

Figure 11 is a section taken through a modification having inner and outer sleeve construction;

Figures 12 and 13 are side views of modifications having different weight position;

Figure 14 is a section taken through a sleeve assembled to a bat, and showing retainer and weight positioning;

Figure 15 is an enlarged view of the retainer seen in Figure 14;

Figure 16 is an enlarged view of a modified retainer of the type shown in Figure 15;

Figure 17 is a view like Figure 15, but showing a conical retainer; and

Figure 18 is a view showing a modified form of sleeve attachment retainers and

Figure19 is a view of a modified sleeve, retainer and weight structure;

Figures 20-27 show modification; and

Figures 28, 29 and 30 are sections taken on lines 28-28, 29-29 and 30-30 in Figure 27.

Figure 31 is an alternative embodiment of the present invention.

Figure 32 is yet another embodiment of the present invention.

Figure 32a is the complete embodiment of Figure 32.

Figures 33a to 33e illustrates the method steps of making the implement. of the present invention.

Figure 34 illustrates the present invnetion including the addition of soft donut shaped weights.

Detailed Description

Referring to Figure 1, an athletic ball striker, in the form of a bat 10 has a surface taper along its length, in region 11. That taper may he defined by a conical section of the bat, between handle 10a, and the bat sweet spot or region 10b. The forward end of the bat is seen at l0c.

A sleeve 13 is provided and sized to be received endwise on the bat, in direction 14. As shown, its assembly onto the bat is arrested in the sleeve position shown, extending about taper region11, as well as about the sweet spot region 10b. The sleeve may, for example, consist of flexible plastic material.

The sleeve has associated retainer means to engage the bat, at taper region 11, and to resist lengthwise renewal of the sleeve off the bat, in direction 14. That retainer means may take the form of an annular retainer ring indicated at 15, Figures 14 and 15 show the retainer engaging the bat tapered surface, at 16, with interference, to resist further forward movement along the bat. The sleeve 17 is attached to the retainer, or carries the retainer as at 18, so that the sleeve is likewise retained against further forward movement on and along the bat. The attachment 18 may be a bond, or the retainer may be mechanically

attached to the sleeve, as by a fastener or fasteners. Sleevematerial may extend between the retainer and the bat.

Retainer 115 is shown in Figure 17 as generally conical, and as having conical inner and outer surfaces 15a and 15b, Figure 16 shows the modified retainer 25 as comprising an annular ring 25a and having a coating 25b on it, such as a plastic coating, serving to engage the 10 bat surface without scoring it. Fig. 18 shows a retainer 26 in the form of a ring, and having an annular recess 26a. A clamping ring 27 extends about recess 26a, and clamps a portion 13b of the sleeve into the recess, to secure the sleeve to the retainer 26.

The sleeve 13 in Figures I and 14 carries a weight or weights 20, spaced forwardly of the retainer 15 at location 116. See space 21 in Figure 14. That space may be of selected length, and may be almost eliminated to place the weights very near the retainer; however, as shown, the retainer 15 is located between location 116 and the bat handle. That weight or weights may consist of a mass of deformable material such as metallic granules continued in a pocket or pockets 23 (see in Fig. 14) integral with the sleeve. Such pockets hold the granules in close conformity to the bat surface at location 116, and the pockets may themselves be flexible to enhance such conformity, so that the bat overall configuration remains generally the same, whether or not the sleeve is applied and retained. This may be promoted by forming the pockets in elongated, narrow configuration, and spaced about the bat as indicated by the weight locations seen in Figure 1. The weights are preferably located adjacent region 116. The pockets may be sewn to the sleeve.

Figure 2 shows a sleeve 30 received on bat, and held against forward dislodgement by annular retainer 31. A first device, such as loop 32 is provided on or attached to the sleeve forward side portion 30a, for enabling manual pulling of the sleeve forwardly along the bat during assembly. A second device, such as loop 33, is provided on or attached to the sleeve rearward side portion 30b, for enabling manual pulling of the sleeve rearwardly along the bat, during disassembly off the bat 34. Figure 4 shows the conical retainer 31, similar to 115 and Figure 3 shows a modified retainer 32, in the form of a cylinder, similar to 15.

Figure 5 is a view similar to Figure 1. The sleeve13 is split at V-shaped edges 13e and 13f that extend lengthwise and form a triangle, Stretchable resilient fabric or material ouch as SPANDEX is provided at 36, and attached to the sleeve along the triangular edges of the sleeve split, of selected length. This allows the sleeve to resiliently expand, for reception on a larger diameter bat, and to fit or adjust to a range of bat diameter sizes.

Figures 6, 7, 8 and 8a schematically show multiple sections 40a and 40b of a sleeve assembly 40. Inner sleeve 40a carries an annular retainer at 41 and weights at 42. Outer section 40b fits telescopically over section 40a, to form the assembly 40. An end portion 40b' of 40b may be pulled back over the retainer 41 and sewn in position at 43.

Figure 9 shows a bat 50, with a thickened sleeve 51 fitting over the bat sweet spot region. A retainer 52 is attached to the sleeve at its end, and may be

attached as during molding of the sleeve, as for example if it is made of rubber or plastic. Solid metallic weights 53 fit into pockets 54 in the sleeve itself.

Figure 10 is a cross section that shows an inner sleeve 60 fitting on a bat and carrying weights at 61; and an outer sleeve 62 fitting over the inner sleeve. The bat is shown in cross section at 63. Figure 11 shows an inner sleeve 64 fitting on a bat, and an outer sleeve 65 fitting over sleeve 64 and carrying weights at 66. The weights may be carried in pockets in the sleeves. The sleeve carrying the weights may be firm, and the sleeve not carrying weights may be flexible.

Figure 12 shows a sleeve 70 on a bat 71, and removable weights 32 carried in pockets 74 that can be opened and closed, as via a flap 73. Fig. 13 shows a sleeve 80 on a bat 82, with weights 83 extending about, or annularly about the bat axis, and carried by the sleeve. See retainers at 90 in Figures 12 and 13.

In Figure 19, bat 140 extends through sleeve 141. Weights 142 are carried by the sleeve as shown, and are spaced about the sleeve axis 143. An annular metallic retainer 144 is carried by the sleeve, and engages the bat tapered surface 145, at annular edge locus 146, to return the sleeve to the bat as during practice swinging. The bat handle extends in direction 147.

Sleeve material 141a extends leftwardly beyond the retainer. An insert ring 148 of material is located leftwardly of the retainer, inwardly of material 141a, Ring 148 may consist of plastic, and acts as a spacer to keep sleeve end material 141a from caving in, or bunching, toward the bat, to interfere with bat

separation from the sleeve in direction 149. The sleeve and its and material may be flexible. Ring 148 is typically carried by the sleeve.

In the Figure 20 modification, the elements include a sleeve with open ends at 200C and 200d, weights 201 carried by the sleeve, and spaced about the sleeve at selected positions. The weights can be solid, or flowable in plastic or fabric bags secured to an inner portion of the sleeve. A ring shaped retainer 202 constructed from any material, or coated with vinyl or rubber, extends about the sleeve near sleeve smaller end 200-d, to retain the sleeve to the bat, which enters at end 200c. Retainer straps 203 extend crosswise over the retainer, and may be sewed to the sleeve, to position the retainer and hold it in position. Sleeveportion 200a has a greater than sleeve portion 200b.

Referring to the embodiment of Figure 21, the unit comprises a sleeve 210, weights 211 carried by the sleeve, as in Figure 20, a flap 212 carrying VELCRO 212a (hook or pile), and sleeve portion 210a carrying a VELCRO 212b (pile or hook) to receive adjustable attachment to VELCRO 212a. The attachment 212a controls the size of the sleeve end portion 210a that extends closely about the bat, i.e. is retained to the bat, to retain the sleeve and weights to the bat.

The embodiment of Figure 22 has the following elements: An inner sleeve section 220 of larger diameter to fit various sizes of bat diameters; an inner sleeve section 221 of smaller diameter, to fit over a bat , a narrower section 222a as seen in Figure 23; and sewn together end junctions 223 of 220 and 221. See also the sew lines 224 and 225 sleeve end opening.

The embodiment of Figure 23 has the following elements: an outer sleeve 230 that fits over inner sleeve 202, weights 231 associated with the sleeve, and carried by Annular retainer 232, Retainer 232 is carried by inner sleeve 202 and has inside wall 232a. The Retainer can be secured by a fabric piece sewn to inner wall of sleeve. A ring of stiff foam 233 or other material acts as a spacer or positioner for an excess fabric end and sleeve inside wall 230b.

Figure 24 illustrates yet another embodiment. This embodiment shows the following elements: outer wall sleeve 240; an inner sleeve 241, with larger diameter section 241a; weights 242 carried by 240 or 241; ring shaped retainer 243; and straps 244 sewn over the retainer, and onto either sleeve, to position the retainer 243. Finally, outer sleeve end slits 245, sewn together to narrow the sleeve end 240a, effectively taper the sleeve to fit a bat taper.

Fig. 25 has the following elements: fabric sleeve 250 ; cut-outs 251 at one and of 250, which eliminate excess fabric in the retainer are at 252 ; a sew line 253 at sleeve 250; and sleeve end flaps 254, between cut-outs, to be sewn together as shown in Figure 26.

Figure 26 has the following elements associated with Figure 25: sewn together edges 255 of flaps 254, to provide a reduced diameter sleeve section 250a versus the larger diameter sleeve section 250b, so that the unit may fit many different size bat barrels; and weights 256.

Figure 27 discloses an embodiment having the following elements: an open end sleeve or outer sleeve 260 that fits onto a bat; frame 261 (plastic or

metal) associated with or carried by sleeve 260 , to extend about inserted bat; weights 262 carried by the frame in pockets 262a and spaced about the bat; a sleeve retainer 263 that extends about the bat, to endwise position the sleeve and frame on the tapered bat, as described above; a frame ring 264, including an inside wall 264a; an open area 265; and a foam or added plastic sleeve 266.

Figures 28-30 are section views, taken relative to Figure 27 and show the positions of weight 262 relative to frame members 270. Zone 271 can be an additional plastic sleeve, extending about the frame. Also, the weight pockets can be spaced about the axis 273, between frame members.

Referring now to Figures Figure 31 to 34, further alternative embodiments of the invention are now shown . Referring to Figure 31, an alternative embodiment comprises a foam or rubber coated retainer 300 inside a fabric 302. Second separated weighted member 304 is affixed to the first member and extends longitudinally 304a further down the shaft of the bat when in use. The weighted members 304 can comprise solid, loose or flowable material. Non-exclusive examples of flowable materials may comprise meterials such as steel or metallic balls or shot, pellets, beans, bird seed, sand and the like. The rubber coated retainer 300 is sewn to the knob end 303 of the fabric 302 to help retain the device in place when in use.

In the embodiment of Figures 32 and 32a, a further alternative the invention comprises a rubber coated retainer 310 in contact with a weighted material 312. The material 312 is placed in a cavity which is filled with a flowable

weighted material such as steel balls, pellets, beans, peas and birdseed or alternatively

One or more transverse straps 314 are attached in a direction parallel to the longitudinal direction of the bat. The weight may have a fabric or polymeric outer surface 316. Preferably an additional plastic or polymeric layer 318 divides the outer surface 316 from the weight material 312.

Figures 33 a-e illustrates a method for assembling the weight of the present invention. Initially, the inner wall fabric is sewn together 400. A polymer bag supporting a weight such as steel or a loose or flowabe material is then inserted into the fabric 402 . A rubber coated retainer 404 is then applied. Cross straps 408 are then applied for stability. A foam 406 is then applied to prevent wear and a ripping of the inner wall fabric 400. Additional outer layers are then applied . These are a layer of fabric 410 covered by a foam layer 412 and then encapsulated by an extra fabric layer 414. The outer wall fabric slips over the inner wall retainer and weights 415. The unit is then stitched together 416.

In a further modification, the embodiment includes a flexible seam comprising spandex or neoprene or similar material. The flexible seam will expand when bigger barrel bats are entered into the bat swing weight and the seam will contract when smaller bats are entered into the bat swing weight to fit snugly to different size barrels. The flexible seam can be any shape and size. Alternatively, the inner wall of the bat swing weight could comprise a flexible material, instead of the inclusion of a flexible seam.

Referring now to Figures 34a to 34c, directed to still additional embodiments where the invention comprises a donut-shaped weight 500. As shown in Figures 34a, the invention comprieses a donut-shaped weight having an inner fabric 502, outer fabric 504 and weighted filler 506, which may comprise a flexible material 508. A rigid inner band 510 maintains the rigidity of the donut.

Figure 34b illustrates another donut shaped embodiment, having an outer fabric wall 512, outer donut 514, inner donut 516 and inner fabric wall 518. This emobodiment includes a filler material 519.

Figure 34c is a section view of the donut 512 showing a rubber or vinyl coated metallic donut 520 encased or covered in soft fabric 522 and/or including a foam 524. An inner wall 526 and fabric 528 is shown.

While the present invention has been described in the context of the above discussed preferred embodiment, it is to be appreciated that other embodiments fulfiull the spirit and scope of the present invention and that the true nature and scope of the present invention is to be determined with reference to the claims appended hereto.